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China's PSE: Are the Chinese Farmers Subsidised? ¹

(Draft for discussion)

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Abstract

The Chinese government introduced some pro-farmer policies in the mid 1990s. This has caused some concerns from other countries on whether and how such policy initiatives would affect China's agricultural trade. This study, based on OECD's methodology, calculates producer support estimates (PSEs) for China. The findings suggest that recent policy shifts are indeed in favour of the Chinese farmers. However, it is also evident that, overall, the Chinese farmers are still taxed even under the current agricultural policies. The paper provides an international comparison of the levels of agricultural support and also addresses policy implications of China's low level agricultural support for China and for other countries.

Key Words: Producer subsidy estimate, agricultural policies, China

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China's PSE: Are the Chinese Farmers Subsidised?

1. Introduction

In the past two decades, the Chinese government has carried out some fundamental reforms on the agricultural policies, which has led to significant changes in the level and mechanism of support to the agricultural sector. These policy changes have profound impacts on the development of the Chinese economy and will also cause some international repercussions.

While the Chinese government gave national food security a top priority among the policy objectives, no real monetary support was provided to the agricultural sector for many decades. This situation, however, has changed in the 1990s, when the Chinese government took a series of measures to stimulate agricultural production and raise farmers' income. China's agricultural import has been declining in the late 1990s with significance. While whether the policies in the 1990s really granted benefits to the farmers remains to be a question under debate in China, the deep concern by China's major trade partners on this issue in effect led to a blockage of China's WTO accession negotiation in the 15th Working Party on China's Accession to WTO held in January 2001 (WTO 2001a). Fortunately a compromise was lately reached between China and the other parties and China has become a member of WTO. However, this event reflects a fundamental fact that many countries concern China's agricultural policy direction at present and in the future.

It has been demonstrated repeatedly by international development experiences that the level of support to agriculture is often positively related to the level of economic development. When an economy becomes richer, its policies tend to shift from taxing agriculture towards supporting agriculture, so that agricultural production can be maintained when opportunity costs for the factors are rising and thus the painful structural adjustment can be postponed. It can be inferred from this rule of thumb that China is likely to take on a road supporting and protecting agriculture given the prospect that China may continue its strong economic growth rate in the years to come. The recent policy development in China seems to be supportive to such a prediction. As declared at the 2002 Rural Work Conference, the Chinese government will take all needed measures within WTO rules and disciplines to strengthen support to agriculture and farm income (People's Daily, January 8, 2002, page 1).

Whether China will follow this "rule" has important impacts not only for China, but also for other countries. Although the Chinese policy-makers have announced such an intention, it remains to be a question whether agriculture will be given positive support under the current social institution. To understand what is likely to happen in the future, a careful review of the past policies is needed.

As early as in the mid 1980s, the concepts of Producer Subsidy Equivalent (PSE) and Consumer Subsidy Equivalent (CSE) were developed by the OECD to measure aggregate

effects of policies on producers and consumers. These indicators were used intensively in policy analyses during the Uruguay Round negotiations. The work to estimate China's PSEs and CSEs was initiated in the late 1980s when the Uruguay Round was under way. Australian Bureau of Agricultural and Resource Economics conducted a joint study with the Institute of Agricultural Economics of the Chinese Academy of Agricultural Sciences on China's agricultural policy reforms, in which China's PSEs and CSEs were first estimated in a systematic way for the year of 1986 (Gunasekera, Tian et al., 1991). Since then, several other studies have dealt with this area in various ways. Webb et al. (1992) estimated PSEs and CSEs of rice and wheat in 1989 based on a simple form of policy distortion. The results reveal that the levels and even directions of PSEs and CSEs are highly sensitive to the reference prices chosen. USDA estimated China's PSEs of major products for the period of 1984-1992 (USDA 1995). Zhu, Wan and Liu (1996) estimated China's PSEs and CSEs for 13 products during the period of 1993-94. A similar exercise was carried out by Cheng (2000), which covered nine commodities and extended the period to 1997. These studies commonly revealed that, in the late 1980s and early 1990s, China's agricultural policies were characterised by taxing agricultural producers and subsidising consumers. This pattern has been widely observed in the developing world.

This study represents a new effort to evaluate the real effects of agricultural policies in the 1990s under China's socioeconomic context. Apart from using updated information, the PSE calculating method is revised based on theoretic consideration and empirical evidences. This paper is organised as follows. After this introduction, the evolution of China's agricultural policies in the 1990s is described to aid in the understanding of agricultural support changes. The third section addresses the methodology for measuring PSE and highlights the conceptual issues when applied to China. The data and results are presented in the fourth section. The fifth section compares China's PSEs with those of selected countries and discusses the policy implications. The last section provides some concluding remarks.

2. China's Agricultural Policies in the 1990s

The 1990s was an era when the Chinese government further extended the scope of economic reforms. However, the changing internal and external economic and political environments resulted in notable switches in policy priorities and instruments. The period can be categorised into three stages based on major agricultural policy initiatives/directions: namely market deregulation during 1990-93, remediation of inflation during 1994-96 and supporting rural income since 1997. An understanding of changes in China's agricultural policies is essential in understanding the related agricultural support issues. To place the changes in agricultural policies into context, the macroeconomic policy environment is first dealt with in the next section.

2.1 Macroeconomic Policies

The reforms of China's macroeconomic policies in the 1990s are characterised by a general trend of continued transition towards a market economy. In compliance with the requirements

to restore GATT membership, China took a series of reforms that covered fiscal system, banking system and enterprise system.

The major reform of the fiscal system was undertaken in 1994 when China instituted a fiscal system that breakup revenues and expenditure between national and local governments. Under this reform, the state-owned enterprises, instead turning over profits or losses to the state, began to pay taxes in line with taxation regulations. This reform has profound impacts on the behaviours of both governments at various levels and the state enterprises. Since then, local governments have to take full or partial responsibility for meeting the costs of many agriculture-related policy programs from their own revenues, which rely heavily on the strength of local economies. The agricultural regions often face severe fiscal difficulties for it is hardly for them to raise enough revenues through agricultural taxes. There appear regional variations with regard to implementation of the same national policy. In the meantime, the state enterprises, some of which were designated to policy-implementation task, began to pursue their own economic benefits. As a consequence, their operations began to deviate notably from what the governments expect.

Major reforms of the monetary system were undertaken in 1994. In the beginning of this year, the Chinese government unified official and swap market exchange rates by a sharp depreciation of China's RMB. Since then, the RMB has been appreciated steadily in both nominal and real terms. Under the reforms of the banking system, the People Bank of China is given the authority as China's Central Bank and other state-owned banks, including the Agricultural Bank of China, are transformed into commercial banks by transferring their policy operations to several newly established policy banks. With a relaxation of regulations, non-state banks and financial institutions emerge, which begin to compete with those old state-owned banks. The government removed control over volume of bank loans, however little progress has been made in introducing market mechanism to determine the interest rates.

While the Chinese government issued Enterprise Law in 1993, the reform of state-owned enterprises lagged far behind, particularly in those sectors traditionally dominated by a state monopoly. However, discriminations against non-state enterprises were largely removed. In effect, this reform has brought about competition in nearly all sectors and forced the state enterprises to improve their efficiency. Nevertheless, the Chinese government maintained certain restrictions on access to some special industries and services, some of them being agriculture-related, such as domestic marketing and trade of grains, cotton and fertilisers.

In response to internal and external factors, the Chinese government altered several times the directions of macroeconomic policies. In the late 1980s, the Chinese government took measures to rectify the economy in order to check inflation. A notable change occurred in 1992 when Deng Xiaoping's gave a speech in Shenzhen, which proposed to accelerate economic growth by allowing market mechanism to play greater role. However, overheating of the economy soon caused double-digit inflation during 1993-95. In response, the Chinese government implemented a series of policies to control aggregate demand aimed at achieving "soft-landing". Unfortunately, when these policies began to realise effects, the Asian crisis

came, leading to a sharp slowdown of export growth in 1998. Since then, the Chinese government began to implement “positive (expansionary)” macroeconomic policies to stimulate aggregate demand, such as increasing government spending, decreasing interest rates, raising the rate of tax rebate for export etc. With such efforts, the Chinese economy maintained a fairly high rate of growth over the whole period of 1990s.

The changes in macroeconomic policies have profound impacts on agricultural development. These influences came from two interlined aspects: changing the policy environment within which agriculture was operating and changing the aggregate demand, which in turn affect agricultural market and rural income.

2.2 Agricultural Policies

2.2.1 *Commodity market policies*

Due to data limitation, this study was only able to cover most of the “traditional” agricultural commodities. The missing items include horticultural products and fishery products, whose shares in China’s total value of agricultural production have been rising rapidly. However, in order to keep the presentation as simple as possible this section does not address the policies related to these high-value products.

Grains

Traditionally, the Chinese government placed a top priority on national food security in determining agricultural policies. As a result, the alteration of agricultural policies in the 1990s was constantly associated with grain market situation.

In order to cope with high inflation, the Chinese government adopted a series of policies to encourage grain production in the late 1980s. However, after the grain output reached a record-high level in 1990, domestic market soon turned into a surplus and the prices declined. Facing with abundant supply of grains in the market, the Chinese government decided in 1991 to carry out an ambitious reform program on the grain sector, which partially aimed at reducing fiscal outlay on grain subsidies. It was the first time in over thirty years that the Chinese government raised retail prices of grain products. However, although the inverse margins between the state procurement and sale prices were removed as a result, the government continued to provide subsidies to the state grain-marketing enterprises (SMGEs) to cover their marketing and stocking costs. In the meantime, with the consent from national government, many provinces decided to liberalise local grain markets either partially or completely². The national government continued to issue reference procurement prices, however, these prices were used only as floor prices in regions where the market was liberalised. The fiscal subsidy to grain import ceased in April 1993 and the system of planned allocation and pricing of imported grains was replaced of by a system whereby the designated state trade companies served as

² It was reported that 98 percent of counties actually liberalized grain prices and marketing by end of 1993 (MOA 2000).

agents for the domestic grain buyers to enter contracts with foreign suppliers. The new arrangement allowed for a closer linkage between domestic prices and world prices.

With an optimistic expectation about the future grain market situation, the Chinese policymakers began to think revising the strategy of agricultural development. In late 1992, the government proposed a strategy to develop "high productivity, high quality and high profitability agriculture". This was partially a proactive initiation with recognition of the structural changes in food demand resulted from rapid income growth and influence of exotic culture and partially a passive response to the sluggish market situation. It was recognised that, after the farmers were able to produce more than what they needed for own consumption, price signals became crucial in guiding their decisions. Thus, effort was devoted to improve the functioning of the market. For instance, a number of wholesale markets and futures markets were established under the government programs to facilitate grain transactions. The initial impact was a significant decline of the market share of SGMEs in both grain purchase and sale.

However, this market-oriented reform did not last long. While China's grain production reached a new record in 1993, the grain prices were suddenly soared at the year-end. The rate of inflation was further accelerated in 1994 and 1995. Measures were taken to increase grain supply so that to cope with rising food prices. In 1994 the government declared to restore the state procurement of grains and raised state procurement prices sharply to induce the producers to increase grain production and sale to the state. Grain import rose dramatically in 1994-95.

The change in grain market situation resulted in a drastically revision of grain policies. In 1995, the "Governor Rice Bag Responsibility System" (*mi-dai-zi sheng-zhang ze-ren-zhi*) was formally put into practice, which imposed pressure on provincial governments to ensure local grain market balance with their own resources and efforts. Long term supply contracts between surplus provinces and deficit provinces were encouraged. The sharp decline of SGMEs' market share was thought undesirable for market stability and a target of purchasing 70 to 80 percent marketed grains was set by the government in 1994. To ensure procurement of enough grains, only designated SGMEs were allowed to make purchase directly from producers and all other users could buy grains only at county or higher-level wholesale markets. The farmers were not allowed to sell their products to other buyers before a county fulfilling assigned procurement quotas. In effect, this enabled SMGEs acting as a local monopsony with a wide range of privileges granted by the government. The government took actions to re-certify wholesale and processing firms in mid 1994, which in effect led to non-SGMEs dealers quitting from market. Interregional shipment of grains was frequently disturbed by administrative barriers set at local levels.

To some extent, the waning by Brown (1995) affected the thinking of the Chinese leaders and contributed to a reversion in the direction of agricultural policy reforms in mid 1990s. The paralleling rises of food prices in the world market was another affecting factor. The Chinese government began to make efforts to increase grain production in order to demonstrate to the world that China was able to feed its population appropriately with own resources. During this period, the national government funded various programs to raise agricultural production

capacity, such as construction of grain production base counties, land reclamation under agricultural development projects, improvement of rural infrastructure, assistance to technical extensions, protection of cultivated land and support farm input industry. The government also made effort to alleviate rural poverty with the helps from several international institutions.

By 1997, the grain market situation reversed another time. Grain prices in the world market began to decline in 1997 and remained at their troughs since then (World Bank 2001). The major Asian economies were hit heavily by the financial crisis, which in effect resulted in a shrinking of China's export. In accompanying with the reform on state enterprises, unemployment in the urban sector appeared. The Chinese economy turned dramatically from inflation to deflation.

The decline of grain prices in the world market was initially thought as a short-run phenomenon. In order to protect the grain production capacity and ensure appropriate income of the producers, the Chinese government began to implement guaranteed procurement of grains at state-set floor prices since late 1997. The SGMEs were ordered to buy whatever amounts the farmers wanted to sell. These instruments were lately included into the new grain policy package issued in late 1998, which included "three policies": (1) purchase at floor prices all grains that producers want to sell (*chang-kai-shou-gou*), (2) sell purchased grains at prices covering all operating costs (*shun-jia-xiao-shou*), and (3) ensure an enclosed circulation of working funds within China Agricultural Development Bank (CADB), which was designated as a policy bank (*feng-bi-yun-xing*).

This policy package never worked as what designed for. The distorted price signal induced the farmers to turnover products not in high demand. Apart from limited storage capacity, the SGMEs lacked incentive to make purchase at the floor prices. With granted monopolistic position in local markets, SGMEs often abuse their power to reject or downgrade grains using various excuses and make purchases based on their own interests. Both domestic and the world market prices remained low, which made "sale without loss" difficult. Under such a situation, the CADB imposed stringent criteria for loans to SGMEs in order to ensure repayments, which in effect reduced capacity of SGMEs to make purchases. While the governments were obliged to provide fiscal funds to subsidise SGMEs for the costs of overstocking, the money was not channelled in adequate time and in enough amounts. The governments and CADB were frequently cheated by SGMEs with fake records of purchase and stock. Huge financial losses incurred for maintaining functioning of the SGME system.

In order to cope with the situation, the Chinese government had to prohibit grain imports and use export subsidy as instrument to dispose overstocked grains (mainly corn). The slow down in China's WTO accession negotiation allowed China to postpone opening of grain market as committed upon entering WTO. Starting from 1999, the government adjusted downward floor prices and removed low quality varieties out of guaranteed procurement. Price margins were allowed to better reflect quality differences and seasonal handling costs. Some food-processing firms were allowed to sign grain purchase contracts directly with producers to ensure supply of products with required quality attributes.

Cotton

Until 1999, marketing and trade of cotton was subject to a more stringent planning control than that applied to grains. The procurement prices were set by the national government each year before planting. The Rural Marketing Cooperatives was designated as the sole buyer of cotton from producers. The producers were once assigned delivery quotas, however, this scheme was relaxed in the 1990s. Over the period, the government frequently adjusted cotton prices according to market conditions with a highly flexible manner.

In 1998, the Chinese government decided to take a fundamental reform of cotton marketing system. Starting from 1999, cotton prices are allowed to be determined by the market. The government retains control over import and export by issuing licenses. This measure has already resulted in a sharp decline of cotton prices towards the level at the world market.

Oilseeds

Oilseeds were also subject to state procurement in the early 1990s. However, the government control was much less stringent than that applied to grains and cotton. By the mid 1990s, while state pricing for soybean continued in major producing regions, other oilseeds were phased out from state procurement. In managing foreign trade, the government maintained quantitative control over import of vegetable oils but opened trade of oilseeds and cakes. Thus, while market force could play a more effective role in oilseed market, domestic market was partially protected by limiting import of vegetable oils. To cope with the rapid increase of import, the government took measures to support oilseed production.

Sugar

Similar to oilseeds, production of sugar crops was deregulated, but foreign trade of sugar was managed under the state planning control throughout the period of 1990s and import decision was made mainly based on domestic demand and supply balance. Thus, while production decisions were guided predominantly by price signals, the degree of integration with the world market was influenced by trade decision. Over the period of 1990s, China's trade position in sugar switched times and again. Domestic prices of sugar crops also fluctuated notably.

Livestock products

The market of livestock products was liberalised in 1985, the earliest among all agricultural products. Since then, the government intervention was limited in consumer market via subsidy to marketing firms and in feed grain markets. However, livestock production was often an important component in a number of government programs, such as urban-market oriented "Vegetable Basket Project", comprehensive agricultural development project and many regional development programs. Foreign trade of livestock products was also liberalised throughout the 1990s and the government could affect trade only by SPS/TBT measures plus

high tariff rates. On the other hand, the disease and quality problem restricted the possibility for China to expand export of livestock products, although China could produce meat products cheaply.

2.2.2 Input and factor market policies

During the 1990s, farm inputs were continuously channelled mainly by the Rural Marketing Cooperatives with limited competition from other participants. The government exercised regulations over prices and distribution of major products. During the 1990s, the pattern of changes in farm input market was quite similar to that of agricultural commodities but the fluctuations were smaller. In 1987, the Chinese government installed a policy to link grain (also cotton and oilseeds) delivery to the state under contract procurement with supply of quality farm inputs at concessional prices (*shan-gua-gou*). By nature, this instrument was a compensation to the losses incurred when the farmers delivered their products to the state at low prices. However, the operation of this scheme suffered from inefficiency.

The reforms of grain marketing system in the early 1990s touched input supply arrangements. The scheme of *shan-gua-gou* was monetised in 1993. However, paralleling the price rise of agricultural commodities, the prices of farm inputs also went up in the mid 1990s, eroding the benefit to the farmers. To cope with this situation, the Chinese government imposed stringent disciplines over price determination at all marketing stages and allowed import of fertilisers at a zero tariff. However, this did not mean introduction of a free trade arrangement for the quantity of import was managed under national plans. As a result, the input prices at farm-gate deviated constantly from that prevailed in the world market. This scheme remained throughout the 1990s, although restrictions on access to domestic distribution services were relaxed in the late 1990s.

The rapid growth of non-agricultural economy in China has led to an intensified competition between agricultural production and the non-agricultural sector for primary factors, such as land, water, labour and capital. This problem is especially crucial in the industrialised coastal provinces. However, the development of factor market lags far behind commodity market. While the farmers are able to choose crops, crop varieties, and production methods that maximise the returns from those primary factors, their rights to trade land, water and labour are restricted.

In legal sense, the cultivated lands in China are owned mainly by the rural collectives and the farmers by virtue as members of these collectives obtain land using right within a specified period. In the early 1990s, the Chinese government adopted a policy that persuaded the rural collectives to extend land using contracts to a period of 30 years. This policy aimed at inducing the farmers to make long-run investment on their lands and thus improve the productivity. Voluntary transfer of land using rights among the farmers was allowed and even encouraged on a basis that this was conducive to realising economy of size. However, in order to ensure agricultural production capacity, the government imposed restrictions to transfer of farmland to

non-agricultural usage. Thus, under such an arrangement, lands cannot be valued by market and their opportunity costs are not fully taken into consideration.

While the market for water is also in its infancy, competition becomes acute increasingly, which does have an impact on farmers decision. Differing from land, irrigation water often has a nature of common or communal resource under the current institutional arrangement. In practice, while the cost for drawing and distributing irrigation water has to be paid by users, the opportunity value is not fully taken into account. In this sense, the farmers likely underpay the irrigation water.

One of the major successes of China's rural economic reforms is to liberalise the labour from land, which allows the farmers to reallocate labour to more profitable non-farm businesses. However, immigration of rural population to cities remains under strict regulation. In fact, the government took actions several times in the 1990s to control the scale of interregional rural labour movement. These restrictions may have an effect to depress the return to rural labour.

Capital market is relatively developed in China for it is a highly mobile factor. Nevertheless, the rural credit services are inappropriate and the farmers, especially the poor, face constraints for the access. Although the government gave the Rural Credit Cooperatives (a quasi-statute institution by nature) preferential treatments in the early 1990s, their inefficiency in operation eroded all potential benefits to the farmers. In fact, the rural sector was often in a position of net saving and thus contributed funds to the development of urban economy.

2.2.3 Agricultural taxation

China's taxation system on agriculture is different from other sectors. Under the taxation system established by the reforms in 1994, the major types of taxation on agricultural products include agricultural tax, tax on special agricultural products and livestock production tax. Agricultural tax is applied to major crop products and is traditionally collected in kind of grains (*jiao-gong-liang*). In fact, it was used as a major instrument for the government to ensure acquirement of needed grains to support its social functions. Agricultural tax is based on a predetermined "constant yield" of land. Under the reforms in 1980s, the constant yield was actually fixed. This arrangement creates an incentive for farmers to raise land productivity. Agricultural tax is paid when farmers deliver their outputs to the procurement station. In practice, local governments and village leaders often collect various fees and charges taking the advantage that they are able to control money payment to the farmers at this stage, although this has been declared illegal times and again by the national government.

Tax on special agricultural products (e.g., tobacco, horticultural crops, wool and animal skins, fishery products) was designed to increase fiscal revenues from those high value products as well as to check their growth in order to ensure production of major commodities, especially grains. The tax base is output value of taxable products with the rates varied for different products.

Livestock tax is collected on output of animals. Initially, livestock tax (animal slaughtering tax) was also used as an instrument to prevent from diversion of resources from grain production to livestock products. However, livestock tax becomes a disincentive to the development of livestock sector.

The existing agricultural taxation system has clear flaws. It in fact plays a role to discourage structural adjustment in line with China's changing comparative advantages and market demand. Instead of the previous collectives, the taxes have to be collected from numerous small producers at high operating costs. Regions with a predominant agricultural economy cannot get enough fiscal revenues from agricultural taxes and thus local governments often impose farmers with various fees and charges out of normal taxation. During the 1990s, the fees and charges collected by townships and villages were roughly two times of the agricultural taxes. Besides, rural labourers were also obligated to provide certain amount of labour services (MOA 2000). To solve these problems and to reduce farmers' burden, the Chinese government is now considering to reform rural fiscal system. Trial experiments have been carried out in several provinces.

2.3 Other Socioeconomic Policies

The Chinese government also implemented a series of other socioeconomic programs that granted support either directly or indirectly to the agricultural communities. Nevertheless, these programs were usually issue- or region-oriented without targeting to specific agricultural commodities.

Poverty alleviation. The Chinese government devoted great effort to eliminate rural poverty during the 1990s. In 1994, the Chinese government issued an ambitious poverty alleviation program, which set a target to eliminate basically all people under the poverty line by 2000. Lately, the government increased fiscal appropriation and bank credits to poor regions. With the help from several international organisations, the government carried out large-scale poverty alleviation projects, for which agriculture was always a key component. Based on official report (State Council News Office 2001), China successfully reduced its rural poverty population from 65 million in 1995 to 30 million in 2000.

Environmental protection. China's economic growth in the past resulted in a wide range of environmental problems in the rural areas, such as pollution of land and water by industrial and agricultural chemicals, water exhaustion, deforestation, desertification, vanish of wetland and reduction of biodiversity, etc. Food safety hazards occurred widely. The Chinese government could devote resources to cope with these problems only after national food security was fairly secured. The change of attitude is reflected in conservation programs introduced in 1998 that intend to restore marginal land from cultivation to pasture, forestry, lakes or wetland. The regions are selected based on certain criteria by the government and the producers are compensated in form of grains. While this program is carried out in many provinces with varied scale, the major targeted areas are the western part of China, where environmental degradation becomes a critical problem for sustaining economic activities at local levels while

generating notable externalities on other regions. This measure will generate long-term benefit, however, it may cause a slight decline of grain output in the near future.

2.4 A General Evaluation of the Policy Changes

China's agricultural policies evolved constantly during the 1990s. As shown from the discussions above, the direction of reforms was not always clearly elaborated and the actual instruments used were often complicated, ambiguous and internally inconsistent. However, a general trend can be observed from the past experiences. Table 1 summarises prioritisation of the government in choosing agricultural policies based on the breakup of three sub-periods. In the early 1990s, the priority of agricultural policies placed mainly on ensuring national food security. The soaring of food prices in 1994-95 in China, as well as in the world market, led the government to place priority on raising food supply so that to check inflation. When demand became limiting factor after 1997, keeping rural income growth takes the highest priority.

Table 1. Chinese Government's Policy Priority

| Policy objectives | Relative importance | | |
|--|---------------------|---------|----------|
| | 1990-93 | 1994-96 | 1997-now |
| Stable supply to urban consumers at low prices | ** | *** | * |
| National food security | *** | *** | ** |
| Rural income generation | * | * | *** |
| Trade competitiveness | | * | ** |
| Environmental improvement | | | ** |
| Poverty alleviation | * | ** | ** |
| Food safety | | | * |
| Social stability | ** | ** | ** |

Note: The number of * indicates the importance of the policy.

The past experiences indicate that policy objectives of the Chinese government tend to be diversified over time in response to the changing internal and external economic situations. There are indications that the relative importance of those traditional policy objectives tends to decline and several new objectives gain high priority. For instance, greater emphases are given to nursing long-term trade competitiveness, food safety and environment improvement in recent years. As a consequence, policy instruments are also under constant revision, which in turn determined the directions and scale of income transfer to the Chinese farmers.

3. Methodology for Measuring PSE

3.1 OECD's Approach

OECD revised its methodology for measuring support to agricultural producers in 1998 and began to call the PSE and CSE Producer Support Estimate and Consumer Support Estimate, respectively (OECD 2001b). The current OECD classification of total transfers associated with agricultural policies (TSE) groups the policy measures into three main categories: (1) transfers

to producers individually (PSE), (2) transfers to consumers individually (CSE) and (3) transfers to general services to agriculture collectively (GSSE). Detailed explanations of the approach can be found from OECD (2001b) and recent measurements for OECD member countries are presented in its annual report: *Agricultural Policies in OECD Countries: Monitoring and Evaluation* (OECD 2001a).

Since this paper focuses on whether the Chinese government provided policy support to the farmers, here we deal with only PSE measurements. OECD (2001a, p151) defines, PSE is an indicator of the annual monetary value of gross transfers from consumers and taxpayers to support agricultural producers, measured at the farm-gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income. It is a measure of nominal assistance in the sense that increased costs associated with import duties on inputs are not deducted.

OECD (2001b) uses several different indicators to reflect the level of policy support.

Percentage PSE (%PSE) is a ratio of PSE to the value of total gross farm receipts, which is measured by the value of total production at farm-gate prices plus budgetary support.

Producer NAC (Nominal Assistance Coefficient) is a ratio of the value of total gross farm receipts including support and production valued at world market prices without support. As OECD (2001a) explained, NAC can be seen as an indicator of market orientation.

In algebraic form, these PSE expressions can be written as follows:

$$\%PSE = PSE / (Q \cdot Pp + PP) \times 100 \quad (1)$$

$$(100 - \%PSE) = Q \cdot Pb / (Q \cdot Pp + PP) \times 100 \quad (2)$$

$$[100 \times 1 / (100 - \%PSE)] = [\%PSE / (100 - \%PSE) + 1] = NACp \quad (3)$$

where,

PP = Payments to producers = PSE – Market Price Support

Q•Pp = value of production at producer prices (not including output payments)

Q•Pb = value of production at border prices

In many countries, market price support consists of the major portion of PSE. As defined, market price support is an indicator of the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers arising from policy measures that create a gap between domestic market prices and border prices of a specific agricultural commodity, measured at the farm-gate level (OECD 2001a, p152). PSE also includes direct and indirect payments to producers through fiscally funded policy programs.

3.2 Analytical Framework for Examining China's PSE

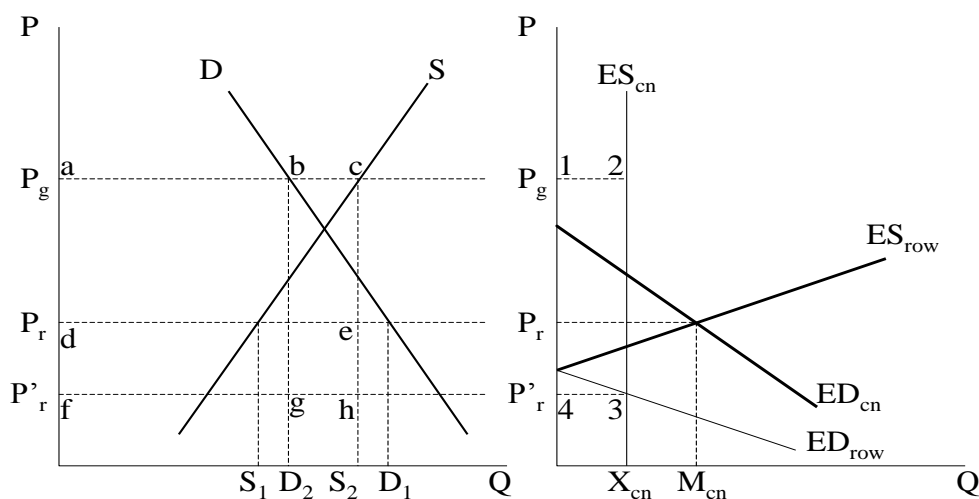
The empirical work on measuring China's PSE face a number of difficulties. While accessibility to needed data is certainly a major constraint, insufficient knowledge on how China's agricultural market functions and how the policies are implemented should not be overlooked. China has been undergoing in a transition from a planning economy towards a market economy, during which rapid switches of policy directions occurred times and again as

the government responding to urgent socioeconomic situations. In reality, not all of the policy changes have been announced publicly and their implementations well documented. Many policies were designed with sincerely good intentions, but could not be implemented as expected in reality. This lead to great difficulty to use recorded government programs and associated fiscal outlays as a base for calculating PSEs.

For the case of China, grain market is most important and peculiar. The market has been constantly intervened by multiple policies, which may not be mutually consistent. There exist multiple forms of prices, each being determined by a unique mechanism. We take the grain market in the late 1990s as an example and use graphic method to analyse policy-induced transfer of income.

As shown in previous discussion, the major policy instrument for the Chinese government to support grain production in the late 1990s is the guaranteed procurement at the state-set floor prices. This is a typical farm income support policy practiced in many countries. Figure 1 depicts the situation when the market functions appropriately as normally assumed in discussing the policy impact. The curves D and S in the left panel represent China's supply and demand. Without policy distortion, China's trade position is reflected by curve ED_{cn} in the right panel, which intercepts excessive supply curve of rest of the world ES_{row} at a price P_r . At this price, farmers produce S_1 and consumers buy D_1 , leaving China being an importer and the amount of import equals to $D_1 - S_1$ (or M_{cn}). When the government institutes a price support scheme and sets the procurement price at P_g , domestic supply increases to S_2 while demand declines to D_2 , turning China into surplus. If this scheme was effective, the SGMEs should purchase all supply (S_2) and then sell D_2 to domestic consumers in the same year at price P_g . The remaining part $S_2 - D_2$ has to be sold in the world market with export subsidies at the prevailing world price or kept in state reserves for later sale. In the former case, China exports X_{cn} and the world price is depressed to P'_r as a consequence. When using observed prices to evaluate PSE, the transfer to producers via **Market Price Support** is measured by the area $achf = (P_g - P'_r) \cdot S_2$, which is significantly larger than the small country case (area $aced = (P_g - P_r) \cdot S_2$). The total transfer to producers by market price support policy consists of that from consumers (area $abgf = (P_g - P'_r) \cdot D_2$) and from taxpayers (area $bchg = (P_g - P'_r) \cdot (S_2 - D_2)$), which equals to the export subsidy (area $1234 = X_{cn} \cdot (P_g - P'_r)$). It is clear that the PSE estimates is notably higher than the case when small country assumption is valid.

Figure 1. Effects of Market Support Policy under a Competitive Market



However, as we indicated previously, China's grain market is not a competitive market by nature. While SGMEs have already become benefit-maximisation enterprises via reforms in the early 1990s, they are continuously assigned by the government to implement grain policies. Under the arrangements, each SGME is in fact allowed to act as a monopsony in their local producer market. On the other hand, SGMEs as a whole can also exercise certain monopolistic power in the consumer market by requiring the national government to restrict import and increasing subsidised exports or reserves. Thus, although competition exists to some extent between SGMEs with non-SGME firms and among SGMEs in consumer market, SGMEs are able to sell products at higher than world market prices. However, SGMEs are not allowed to pursue maximum profit freely. They can do so only within the constraints set by the government, or their operations must comply with policy requirements in nominal terms at least.

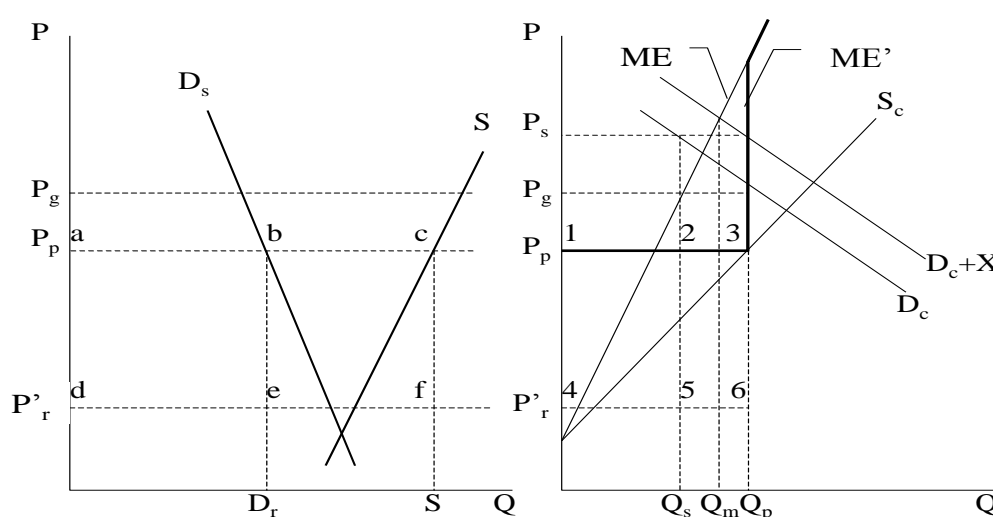
Figure 2 gives a visual presentation of SGMEs' behaviour under China's policy and institutional context. Differing from Figure 1, here we use directly the distorted reference price P'_r as a benchmark and the left and right panels show rural market and urban market respectively. The purpose to make this change is to separate the policy effects on urban consumers and rural producers taking account the fact that a significant proportion of farm produce is self-consumed by rural families. For simplicity, we assume that SGMEs exercise their market power only in producer side, while the government responds to SMGEs requirement by prohibiting import and subsidising export of the entire surplus product (the same amount as X_{cn} in Figure 1).

In the left panel, D_s is rural subsistent demand curve and S is supply curve, from which the commercial supply curve to urban market S_c can be derived as shown in the right panel. The

demand by urban consumers and that with export are shown by curves D_c and D_c+X respectively in the right panel. The curve ME in the right panel shows the marginal expense incurred when SGMEs make purchase.

If SGMEs are allowed to take the advantage of their monopolistic position freely without facing competition of imported product, maximum profit is obtained by supplying a quantity Q_m , at which ME curve intersects the total demand curve. Under such a situation, SGMEs are able to charge the consumers a much higher price and pay the farmers a much lower price (both are not shown in the Figure for simplicity), thus obtain a monopolistic rent.

Figure 2. Effects of Market Support Policy under a Monopolistic Market



However, such a scenario is inconsistent with government objectives. In reality, if urban consumers complain that the prices are too high, the government may respond by increasing import, resulting in a decline of SGMEs market power. Similarly, if the government discerns that SGMEs do not comply with the state-set procurement prices, it may discipline SGMEs. Thus, the price determination by SGMEs becomes a subtle strategic game with the government. SGMEs may attempt repeatedly what is the scope of prices that can be tolerated by the government and the public and choose the prices accordingly. Assuming P_p is the minimum price allowed by the government. With this floor prices, SGMEs marginal expense curve becomes kinked as the thick line ME' in the right panel. The new equilibrium is achieved with a supply of Q_p and urban market sale of Q_s at price P_s .

Three important issues can be noted from Figure 2. Firstly, the income transfer to producers is smaller than the case when P_g is effective. Secondly, while the transfer of income to producers is area $acfd = (P_p - P'_r) \cdot S$ when using standard PSE method, the area $abed$ is in fact nullified for this part of transfer is only nominal. Only the transfers from urban consumers (area 1254) and from taxpayers (area 2365) bring the rural producers real benefits. Thirdly, both consumers and taxpayers transfer income to SGMEs, which becomes a deadweight loss.

It seems strange that the government could allow SGMEs to disobey its opening announced policies. This becomes possible due to several reasons. Firstly, starting from 1996, the national government changed the floor prices from fixed prices to reference prices and allowed provincial governments to make adjustment within specified scope in line with local market conditions (MOA 2000). Secondly, SGMEs, by exercising arbitrarily quality determination and intentionally procedural delay, create a condition that forces a large number of farmers selling their produce at low prices because the costs for searching alternative market opportunities could be prohibitive for producers who have only small amounts of products to sell. Thirdly, under the arrangement that the expenses needed for maintaining guaranteed procurement are shared between national and local governments, local governments in grain-producing regions are unwilling and also often unable to provide funds to subsidise grain procurement and thus connive SGMEs to depress price and to limit quantity of purchase. Fourthly, many fees and charges are also collected when producers make their delivery. As a result, the benefit accrued to grain producers is eroded significantly.

Figure 2 addresses the fact that SGMEs are able to earn a profit by pursuing the government limiting imports and subsidising export and by exploiting the producers. In reality, SGMEs can also benefit themselves by incurring larger than normal costs, part of which can be turned into common welfare of the whole units or personal gain of the managers. During the 1990s, SGMEs were not legally allowed to pursue maximum profits. Thus, cheating the government by over-reporting operating costs and stocks often became a preferred alternative. In this aspect, local governments may even collude with local SGMEs in obtaining fiscal subsidies from higher governments and bank loans in order to avoid burden on local fiscal budget. In reality, inefficient operations of SGMEs result in large amount of bad debts in the policy financial institutions, which have to be born by the national government eventually.

The above analyses highlight several facts that may affect calculated PSEs. The first one is that the calculation based on observed world prices may lead to overestimates of transfer to producers via market price support. The second one is the nullified transfer is likely to be large in China as well as other developing countries where share of self-supplied food is large. The third is that, due to rent-seeking and leakage, officially announced support prices and fiscal outlays may not be good benchmarks for measuring benefits to rural people.

4. Data and Results

4.1 Policy Coverage and Data

This study follows the OECD categorisation of agricultural policies basically (OECD 2001b). China's agricultural policies in the 1990s were complex, and their effects were uncertain due to institutional flaws in policy implementation. In aggregate, the major effect of these policies is to cause deviations of domestic prices from the world market prices. The income transfer resulted from price distortions enter item A. Market Price Support. For livestock production, income transfer to producers from market price support is net of that on domestically produced feed grains. Agricultural taxes are treated as negative support to producers and enter item B.

State invention of farm inputs results in gaps between domestic and the world market prices and the associated transfer enters item E. The fiscal outlay on rural relief enters item G. Government funding for various agricultural development programs enters item H. Table 2 summarises the results of categorisation.

Table 2. Categorisation of China's Agricultural Policy Measures

| OEC D Code | Description | Policy instrument in China |
|------------------|---|--|
| I. | Producer support estimate | Sum of A to H |
| A. | Market price support | Border policies and state intervention in domestic farm product market |
| B. | Payments based on output | Agricultural taxes (in negative value) |
| C. | Payment based on area planted or animal numbers | None |
| D. | Payment based on historical entitlement | None |
| E. | Payment based on input use | Border policies and state intervention in domestic farm input market |
| F. | Payment based on input constraints | None |
| G. | Payment based on overall farming income | Rural relief |
| H. | Miscellaneous payments | Fiscal outlays on agricultural development programs |

In parallel with the economic reforms, China has gradually relaxed the control over statistical information. A rich set of data is now available for the general public. However, accuracy of the statistical information is subject to question. Constant changing in the concepts of statistics and their processing procedures further complicates the situation. Many critical data are still unreleased while finding alternative sources of such information are often impractical or extreme costly. Consequently, researchers have to rely on either official data or small sample information.

Calculation of PSEs require four types of data: (1) producer prices; (2) reference prices; (3) market supply, demand and trade; and (4) fiscal expenditures on policy programs.

In this study, producer prices of farm outputs are derived primarily from China's farm production cost survey (State Planning Commission, 2000) on the basis that it can provide compatible time series data and it gives what farmers actually receive when making sale. Prices of farm inputs are derived from information collected under the rural social-economic survey by the Research Centre of Rural Economy (OFROV 2001) in combining with other data sources, such as China Statistical Yearbook (SSB 2001).

The reference prices are derived from China customs statistics (China Customs Administration 2000). China's trade positions for several commodities altered frequently during the 1990s,

such as rice, corn, cotton and soybean. For simplicity, it is decided that the reference prices be represented by unit import values when China was net importer and unit export values when China was a net exporter. Price information from FAO is used to replace China's data when the quality of latter source is highly suspicious. These unit values are converted into RMB at the swap market exchange rate before 1994 and the official exchange rate thereafter. The border prices are then adjusted into farm gate prices by taking into account of factors like transportation and handling costs, quality differences, etc.

Market supply, demand and trade statistics are obtained from several sources, including China Statistical Yearbook (SSB 2001), China Agricultural Statistical Information (MOA 2001), China customs statistics (China Customs Administration, 2000), FAO statistical database (FAO 2001), and USDA PS&D database (USDA 2001). The shares of commodities marketed are derived from OFROV (2001) and SSB (2001).

Government fiscal information is reported in China Statistical Yearbook (SSB 2001) and China Financial Statistical Yearbook (SSB 2000). China Agricultural Development Report (MOA 2000) provides extensive policy information.

Considering the fact that large shares of farm produce are self-consumed by rural households and the associated transfer of income between consumers and producers are meaningless, this study calculates the market price support only on marketed products.

It is understood that inconsistencies often exist for the same statistics coming from different sources. To minimise the effects on results, the data are crosschecked to obtain an idea of their divergences and assessed based on our knowledge.

Several unsolved issues remain. The first one is whether there are income transfers associated with primary factors, to which the markets are either inexistence or ineffective. The second one is whether farmers burden should be included when analysing transfer through fiscal instruments. The present analysis disregards this issue and just treat agricultural taxes as negative support to producers while includes an equal amount into general service support estimate (meaning government tax income foregone). The third one is related to the "leakages" from government-funded programs, which distort the actual benefits to agriculture. Such leakages are often much large in agriculture-based regions.

4.2 Results

The obtained results of China's PSE for all commodities are reported in Table 3. It is apparent that the Chinese agriculture was not supported at all over the period of 1990s. In all 11 years covered, the PSEs are constantly negative, although the absolute values become small in some years. This pattern is consistent with the previous studies (e.g. Cheng 2000; Zhu, Wan and Liu, 1996) while the percentage PSEs are smaller in general. This can be attributed to the methodology applied in this study, where we only consider income transfer via marketed products.

It can be also observed from the results that there is a general, although not always stable, trend of decline in market price support (MPS) component, indicating that China tends to remove those policy distortions that tax the agriculture. The NAC indicators are very close to one since mid 1990s, meaning that, at least in nominal sense, China's agricultural policy reforms have moved in a direction towards greater market orientation. However, while this general direction is true, not all of the agricultural policies adopted in recent years are market friendly. The grain marketing policy after 1997 is one of the examples.

The situation for different products varies. Table 4 presents the results for individual commodities. Among the cereals, rice is constantly taxed, wheat is constantly supported, and corn is supported in some years and taxed in the others. Corn was given a positive support in recent years mainly via subsidised export. Nevertheless, the percentage PSEs (in absolute term) are not large, especially in recent years. This phenomenon seems contradictory with the new grain policies, which was designed to protect grain producer income. However, this result may mirror the reality rather closely. As we discussed above, the current institutional arrangements can often render the guaranteed prices ineffective. Thus, although the contract prices and floor prices were fairly higher than the prevailing world market prices, what the farmers were actually received was much less.

The PSEs for oilseeds show two distinct patterns. While soybean and rapeseed received support in most years, the contrary was true for peanuts and sesame³. China is a major producer of all these oil crops. However, China's comparative advantages in soybeans and rapeseed tend to decline because of not only changes in its own resource endowment, but also high support provided by major exporting countries. Starting from 1996, China turned from soybean exporter into importer and the import volume run above 10 million tons in 2000. Although the large import is driven mainly by domestic demand increasing rather than supply shrinking, the government does concern the situation and begins to provide support. The case for rapeseed is similar but much less severe. In contrast, peanut and sesame are two China's traditional export products, for which China still has comparative advantages over major competitors. As a consequence of different competitiveness, the negative supports to peanut and sesame remain unchanged.

Being the largest exporter of textile products in the world, China needs to ensure appropriate supply of cotton at low prices. Market price support policy is not necessarily consistent with this requirement. In reality, while cotton was put under stringent state control over marketing and pricing in nearly whole period of the 1990s, the government adjusted procurement prices based on market situation not only in high frequency, but also often in large step. However, except for in a few years, the producer prices was lower than the reference price, leading to the negative PSEs.

³ Soybean is still accounted as grain crop in China's official statistics.

Table 3. Producer Support Estimate for the Agriculture Sector

Unit: Billion RMB

| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000p |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Total value of production (at farm gate) | 445.3 | 459.8 | 494.0 | 637.2 | 1056.2 | 1356.1 | 1482.5 | 1486.1 | 1410.6 | 1202.8 | 1129.5 |
| Total value of consumption (at farm gate) | 450.0 | 459.5 | 489.5 | 623.6 | 1046.6 | 1390.1 | 1499.9 | 1493.1 | 1405.6 | 1208.5 | 1117.5 |
| Of which: marketed domestic product | 252.9 | 267.4 | 284.1 | 364.2 | 617.1 | 784.3 | 860.0 | 894.3 | 840.9 | 709.9 | 691.7 |
| Producer Support Estimate (PSE) | | | | | | | | | | | |
| Market price support | -218.5 | -175.2 | -138.4 | -168.3 | -157.1 | -17.4 | -54.9 | -13.7 | -31.6 | 1.2 | -19.2 |
| Of which nullified transfer | -103.6 | -70.1 | -57.7 | -72.9 | -62.5 | 11.9 | -48.9 | 16.2 | 35.6 | 17.5 | 7.2 |
| Payments based on output | -6.2 | -6.3 | -8.3 | -8.8 | -16.2 | -19.5 | -25.9 | -27.8 | -27.9 | -29.6 | -32.6 |
| Payments based on area planted/animal numbers | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Payments based on historical entitlements | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Payments based on input use | 3.5 | 8.3 | 3.9 | 5.7 | -2.5 | 0.5 | -2.7 | -4.4 | -8.3 | -6.6 | -5.9 |
| Payments based on input constraints | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Payments based on overall farming income | 1.1 | 1.8 | 1.3 | 1.3 | 1.6 | 2.2 | 3.1 | 2.8 | 4.1 | 3.0 | 3.5 |
| Miscellaneous payments | 8.6 | 9.4 | 10.4 | 12.8 | 15.3 | 15.4 | 18.1 | 20.2 | 21.2 | 22.9 | 25.9 |
| Total | -107.9 | -92.0 | -73.4 | -84.4 | -96.4 | -30.6 | -13.4 | -39.1 | -78.2 | -26.8 | -35.5 |
| Percentage PSE | -23.8 | -19.4 | -14.6 | -13.0 | -9.1 | -2.3 | -0.9 | -2.6 | -5.6 | -2.2 | -3.2 |
| Producer NAC | 0.81 | 0.84 | 0.87 | 0.88 | 0.92 | 0.98 | 0.99 | 0.97 | 0.95 | 0.98 | 0.97 |

Note: p. Preliminary estimates.

Policy intervention on sugar crop production was significantly weakened during the 1990s. However, since both sugarcane and sugar-beet production are concentrated in specific regions where local economies and rural incomes have a high reliance on sugar crop planting, regional governments often take measures affecting the sugar crop production. Overall, sugar crop producers did not receive much policy support in the 1990s. However, the trend is clear that the discriminatory impacts by the policy scheme tended to vanish.

All of the animal products seem to be taxed relatively heavily in most time. While the negative PSEs for ruminant animals are caused mainly by the low domestic prices of the products, those for pig meat, poultry meat and eggs are also caused by the unfavourable feed prices in the period after 1993. Several studies reveal that China has at least cost advantages in animal productions (e.g. Cheng, 2000; Wang 2001; Huang and Ma 2001). China's accession to the WTO may enhance such advantages by cutting down feed grain costs (CEM 1999). However, the possibility to expand export of animal products relies critically on if China is able to improve the quality of animal products. This is the area that the Chinese government already begins to focus.

In general, the obtained PSEs for individual commodities in the earlier years have a similar pattern as what found in the previous studies (Cheng 2000; Zhu, Wan and Liu 1996). There are two major new findings from this exercise: (1) the PSEs are downsized when self-consumed portions of products is excluded from calculating market price support; and (2) the percentage PSEs tend to approach zero in recent years for nearly all products.

Table 4. Producer Support Estimate by Commodity

| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000p |
|---------------------|------|------|------|------|------|------|------|------|------|------|-------|
| Rice | | | | | | | | | | | |
| Percentage PSE | -26 | -12 | -13 | -3 | -11 | 4 | -9 | -3 | 0 | -5 | 0 |
| Producer NAC | 0.79 | 0.89 | 0.89 | 0.97 | 0.90 | 1.04 | 0.92 | 0.97 | 1.00 | 0.96 | 1.00 |
| Wheat | | | | | | | | | | | |
| Percentage PSE | -8 | 4 | 3 | -8 | 3 | 4 | 4 | 7 | 6 | 7 | 1 |
| Producer NAC | 0.93 | 1.04 | 1.03 | 0.93 | 1.03 | 1.04 | 1.04 | 1.08 | 1.07 | 1.07 | 1.01 |
| Corn | | | | | | | | | | | |
| Percentage PSE | -19 | -14 | -12 | -13 | 6 | 1 | -11 | 5 | 9 | 4 | 0 |
| Producer NAC | 0.84 | 0.88 | 0.89 | 0.88 | 1.06 | 1.01 | 0.90 | 1.06 | 1.10 | 1.04 | 1.00 |
| Soybean | | | | | | | | | | | |
| Percentage PSE | -4 | 6 | 14 | 14 | -1 | 13 | 11 | 11 | 3 | 7 | 10 |
| Producer NAC | 0.96 | 1.06 | 1.16 | 1.16 | 0.99 | 1.15 | 1.12 | 1.12 | 1.03 | 1.08 | 1.11 |
| Rapeseed | | | | | | | | | | | |
| Percentage PSE | -1 | 6 | -1 | 1 | 7 | 8 | 29 | 3 | 5 | 6 | 8 |
| Producer NAC | 0.99 | 1.06 | 0.99 | 1.01 | 1.08 | 1.09 | 1.40 | 1.03 | 1.05 | 1.06 | 1.08 |
| Peanut | | | | | | | | | | | |
| Percentage PSE | -30 | -59 | -18 | -23 | -8 | -7 | -12 | -15 | -26 | -12 | -17 |
| Producer NAC | 0.77 | 0.63 | 0.85 | 0.81 | 0.93 | 0.93 | 0.89 | 0.87 | 0.79 | 0.89 | 0.85 |
| Sesame | | | | | | | | | | | |
| Percentage PSE | -18 | 0 | -16 | -8 | 5 | -8 | -11 | -13 | -22 | -17 | -23 |
| Producer NAC | 0.85 | 1.00 | 0.87 | 0.93 | 1.06 | 0.92 | 0.90 | 0.88 | 0.82 | 0.85 | 0.81 |
| Cotton | | | | | | | | | | | |
| Percentage PSE | -26 | -25 | -32 | -19 | -18 | -1 | -2 | -1 | -12 | -12 | 0 |
| Producer NAC | 0.80 | 0.80 | 0.76 | 0.84 | 0.85 | 0.99 | 0.98 | 0.99 | 0.89 | 0.90 | 1.00 |
| Sugar | | | | | | | | | | | |
| Percentage PSE | -38 | -4 | -41 | -71 | -10 | 2 | 1 | 7 | -4 | 8 | 3 |
| Producer NAC | 0.72 | 0.96 | 0.71 | 0.58 | 0.91 | 1.02 | 1.01 | 1.08 | 0.96 | 1.08 | 1.03 |
| Pork | | | | | | | | | | | |
| Percentage PSE | -39 | -39 | -23 | -11 | -11 | -1 | 6 | -5 | -21 | -8 | -14 |
| Producer NAC | 0.72 | 0.72 | 0.81 | 0.90 | 0.90 | 0.99 | 1.07 | 0.95 | 0.83 | 0.93 | 0.88 |
| Beef | | | | | | | | | | | |
| Percentage PSE | -36 | -37 | -27 | -29 | -5 | 0 | -4 | -12 | -11 | 7 | 16 |
| Producer NAC | 0.74 | 0.73 | 0.78 | 0.78 | 0.95 | 1.00 | 0.96 | 0.89 | 0.90 | 1.07 | 1.19 |
| Mutton | | | | | | | | | | | |
| Percentage PSE | -17 | -12 | -8 | -26 | -15 | -12 | -11 | -14 | 3 | 9 | 9 |
| Producer NAC | 0.85 | 0.89 | 0.93 | 0.80 | 0.87 | 0.90 | 0.90 | 0.88 | 1.03 | 1.10 | 1.10 |
| Poultry meat | | | | | | | | | | | |
| Percentage PSE | -46 | -60 | -31 | -49 | -18 | -26 | -6 | -13 | -4 | -8 | 2 |
| Producer NAC | 0.69 | 0.62 | 0.77 | 0.67 | 0.85 | 0.80 | 0.94 | 0.89 | 0.96 | 0.93 | 1.02 |
| Eggs | | | | | | | | | | | |
| Percentage PSE | -1 | -4 | -12 | -25 | -28 | -30 | 5 | -4 | 2 | 1 | -5 |
| Producer NAC | 0.99 | 0.96 | 0.90 | 0.80 | 0.78 | 0.77 | 1.05 | 0.96 | 1.02 | 1.01 | 0.96 |

5. International Comparison and Policy Implications

5.1 International Comparison

The pattern of China's PSEs is in a striking contrast with those of other countries. Table 5 compares China's percentage PSE with those estimated by the OECD for selected countries in 1999. It is evident that China's PSE was lower than all OECD countries listed here. Even in Non-OECD transitional economies, the farmers often received supports with varied degrees. This suggests that the Chinese farmers are discriminated in comparison with their counterparts in other countries. It can also be noted that, except for Australia, Hungary and Russia, the percentage PSEs in the late 1990s remained at almost the same levels as those prevailed in the beginning of Uruguay Round. Only Bulgaria has a pattern of changes similar with China.

Table 5. Comparison of Percentage PSEs between China and Selected Countries ^a

| | 1986-88 | 1998 | 1999 | 2000p |
|---------------------|------------------|------|------|-------|
| China | -19 ^b | -6 | -2 | -3 |
| OECD members | | | | |
| Australia | 9 | 7 | 5 | 6 |
| EU | 44 | 39 | 43 | 38 |
| Hungary | 39 | 19 | 23 | 18 |
| Japan | 67 | 62 | 64 | 64 |
| Korea | 71 | 57 | 69 | 73 |
| Mexico | -1 | 14 | 15 | 18 |
| Poland | 12 | 21 | 21 | 20 |
| United States | 25 | 23 | 25 | 22 |
| All OECD | 39 | 34 | 37 | 34 |
| Non-OECD | | | | |
| Bulgaria | -39 ^b | 2 | -6 | 2 |
| Romania | 15 ^b | 28 | 18 | 11 |
| Russia | 60 ^b | 14 | 2 | 3 |

Note: a. The PSEs of other countries are OECD estimates (OECD 2001c, 2001c). b. The data in 1991.

Table 6 compares the commodity-specific percentage PSEs. It can be noted that the major developed countries have positive PSEs in all commodities with varied levels. In contrast, the transitional economies, including Hungary and Poland, provide supports only to certain commodities. China tends to provide greater support (or draw less taxes) on commodities whose prices are heavily distorted in the world market and on which China has no comparative advantages, such as wheat, corn and oilseeds (soybean). For the commodities whose prices are less distorted in the world market, China's support levels are lower, such as pork, poultry and egg.

Table 6. International Comparison of Percentage PSEs for Selected Commodities (1998-2000)

| | Rice | Wheat | Corn | Oilseeds | Sugar | Pork | Beef | Mutton | Poultry | Egg |
|---------------------|------|-------|------|----------|-------|------|------|--------|---------|-----|
| China | -2 | 5 | 4 | 7 | 2 | -14 | 4 | 7 | -3 | 0 |
| OECD members | | | | | | | | | | |
| Australia | 7 | 6 | n.c. | 3 | 6 | 4 | 4 | 4 | 3 | 4 |
| EU | 17 | 49 | 38 | 27 | 53 | 25 | 76 | 56 | 33 | 12 |
| Hungary | n.c. | 5 | -16 | -5 | 46 | 20 | -8 | -9 | 35 | 58 |
| Japan | 86 | 85 | n.c. | 58 | 58 | 54 | 33 | n.c. | 11 | 16 |
| Korea | 77 | n.c. | n.c. | 86 | n.c. | 42 | 61 | n.c. | 42 | 9 |
| Mexico | 23 | 35 | 39 | 40 | 51 | 10 | 14 | n.c. | -1 | -40 |
| Poland | n.c. | 21 | 5 | 18 | 52 | 23 | -11 | 25 | 34 | 51 |
| United States | 31 | 45 | 31 | 20 | 61 | 4 | 4 | 12 | 4 | 4 |
| All OECD | 79 | 42 | 32 | 22 | 54 | 23 | 35 | 44 | 13 | 10 |
| Non-OECD | | | | | | | | | | |
| Bulgaria | n.c. | -10 | -9 | -26 | 60 | -12 | -38 | n.c. | 27 | 35 |
| Romania | n.c. | 28 | 20 | -17 | 62 | -10 | -36 | n.c. | 36 | 38 |
| Russia | n.c. | -16 | 8 | -58 | 37 | 12 | -37 | n.c. | 49 | 33 |

Note: n.c. refers not calculated. The PSEs of other countries are OECD estimates (OECD 2001a, 2001c).

5.2 Policy Implications

In the history, China took a strategy of accumulating funds for capital construction from agriculture to support industrial development. The major instrument was to buy food products from farmers and sell them to urban consumers at very low prices so as to maintain low wage rates in the industrial sectors. Export of agricultural products also served a major role to earn precious foreign currencies. This kind of policies was the major reason for the negative PSEs in the past. However, this approach has been changed gradually since the late 1980s. Support to agriculture is no longer just a slogan propagated by the policymakers. In fact, with a steady growth of income and a decline of food expenditure share, the urban consumers shift their attention increasingly from low prices towards quality, diversity, safety and convenience. As a result, transfer to producers via higher prices is less noticeable and thus causes concern by the consumers. This situation allows the government to take measures supporting agriculture. Thus, the fact that the farmers did not receive real support must be taken as an indication of failure in policy implementation. In the theoretic analysis above, we addressed rent-seeking behaviour of SGMEs as a responsible factor. In reality, this type of behaviour prevails also in other policy-making and implementing agencies, including various government bodies. Thus, without fundamental reforms of the social institutions, it will remain to be difficult for the agricultural sector to be supported even the national government has sincere intention to do so.

China's negative PSEs trended downward (in absolute terms) suggest that the rural policy reforms in recent years move in a direction increasingly in favour of agriculture. While the government has raised support to agriculture (in fact removal of discrimination) in recent years, it is hard to say that the policymakers purposefully choose a strategy to support agriculture. To

some extent, the policy of guaranteed procurement of grains was determined based on an expectation that the decline of grain prices in the world market since 1996 was a short-run phenomenon and no fiscal subsidy would be needed when the market recovered. However, till now, the world market is still in its trough. When the low price period was prolonged, the Chinese government was bound by its commitment to adhere support to agriculture. While the national government does pay greater attention to rural-urban income disparity and social stability and wishes to prevent rural income from declining, many local governments are not willing to use their limited fiscal funds subsidising added stocks. Thus, the trend enhancing support to agriculture has not been stylised. In fact, while the policymakers have not given up the doctrine of food security via basis self-sufficiency in grains, but rural income generation becomes a more important issue when the market seemed to be already oversupplied and deflation becomes a major macroeconomic problem. It remains to be a question whether the policymakers will follow the recent trend if the world food market situation is reversed.

China is now in a crossroad, at which it needs to choose a direction of future agricultural policies. With a strong growth of the economy and fiscal revenue, the national and regional governments are able to allocate more funds to agriculture-related programs, especially in those richer coastal provinces, although those agricultural regions still need to raise fiscal revenues by taxing agriculture. The non-trade concerns have already received attention by policymakers and academics. Various proposals have been discussed on how to assist agricultural development within the framework of WTO rules and disciplines, such as “green-box” policies (Cheng 2000; CEM 1999). Given such a background, it is certain that China will increase support to agriculture. The remaining issue is how to do this and to what extent.

According to the WTO accession protocol, China needs to open its market of major agricultural products in line with the committed tariff-rate-quota arrangements and tariff cut schedule, to stop export subsidies instantly and to cap domestic support to agriculture (WTO 2001b). Implementation of these commitments helps to remove existing price distortions, which in turn may results in a decline of the positive MPS for crop products as well as a decline of the negative MPS for pork and poultry. Overall, the size of MPS in absolute term may tend to be shrunken. Thus, the signs and magnitudes of PSEs will primarily determined by other payments. While China is bound by a maximum 8.5 percent of domestic support, this room is large enough for China to increase fiscal assistance to agriculture since the current support is negative. Reduction of agricultural taxes, particularly the tax on special agricultural products, has been proposed. The extension of trading rights to private sectors and opening market of services will enhance competition in China’s agricultural market, which is expected to be an effective mean to correct rent-seeking behaviour of the SGMEs and the state trading enterprises. With such reforms, the “leakage” of policy support can be minimised. Thus, the fundamental challenge China will face is not the shock resulting from increased agricultural imports, but is how China can improve its regulatory system over agricultural marketing in line with WTO rule and disciplines.

6. Concluding Remarks

Emerging from this study are the following four important findings:

- 1) China's agriculture in a whole was net-taxed in the past decade;
- 2) The level of policy support has been increasing in the past few years primarily by removing discriminatory policies;
- 3) The level of market price support was the major factor determining the levels of PSEs in China; and
- 4) The level of support is higher for those commodities that the world prices are distorted heavily and China lacks comparative advantage.

The PSEs obtained from this study reveal an important fact that China has not turned on the road of supporting agriculture, although there are indications that the recent policy reforms tend to move in such a direction. This can be easily understood considering international experiences. As a country with the largest rural population in the world, China has to give high priority to rural economic growth in order to ensure social stability. Recognising the fact that the rural labourers lack appropriate skills needed in non-farm undertakings, which limits the scope and speed for the unavoidable structural adjustment, assistance to agricultural production is the easiest way to alleviate the problem in short-run. Thus, China is now in a crossroad in choosing its future agricultural policies. However, it becomes critically important for China, as well as for the international community, that China should not adhere to such policies as what have been done in many developed economies. While it is legitimate for China to take appropriate measures, this should not retard the unavoidable structural adjustment in long run.

Our study also indicates that the leakage of domestic market price support policies is very large. This could be the case in other developing countries as well. Thus, in designing future agricultural supporting policies, the costs of policy implementation should be taken into account. With regard to measures supporting agriculture, decoupled income payments are theoretically sound and may be effective in the condition of developed economies. However, implementation of such measures requires institutional arrangement that does not exist or function well in the context of developing countries and transitional economies. In contrast, border policies are far more transparent and are relatively easy to manage. Thus, while institutional reforms should be accelerated in developing countries, flexibility in choosing policy measures should be included in WTO agreements and be chosen on the criteria of minimum trade-distortion in complemented with the principle of cost-effectiveness.

The way that China assists agriculture has important repercussions to the world agricultural trade in future due to the huge sizes of China's demand and supply. While the major exporters may concern China's actions, avoidance for China to take on road of protecting and supporting agriculture could not be easily achieved by imposing WTO disciplines on China only. The major players must set their own as examples to cut down domestic support to agriculture and export subsidies. Besides, they should make sincerely efforts to grant developing countries greater market access in value-adding agricultural products, which are heavily protected not only by tariffs but also but SPS/TBT measures. The developed countries should make

commitments in transferring advanced agricultural production and processing technologies to developing countries to assist them improving quality of their products so as to meet the quality and safety standards required by the affluent consumers in those countries. It is shortsighted that the developed countries attempt to force developing countries opening their markets for primary agricultural commodities through the new-round WTO negotiation while keep their high value product markets closed. This can cause tension within WTO and thus retards progress for a further trade liberalisation.

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